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Appeal Brief Transmittal (1 page)  
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# TRANSMITTAL OF APPEAL BRIEF

Docket No.  
01313/100G996-US2

In re Application of: John P. Erspamer et al.

Application No.  
09/854,179

Filing Date  
May 11, 2001

Examiner  
N. B. Patel

Group Art Unit  
3743

Invention: ABSORBENT STRUCTURE WITH INTEGRAL VAPOR TRANSMISSIVE, MOISTURE BARRIER

## TO THE COMMISSIONER OF PATENTS:

Transmitted herewith in triplicate is the Appeal Brief in this application, with respect to the Notice of Appeal filed: April 21, 2004

The fee for filing this Appeal Brief is 330.00

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Dated: June 21, 2004

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# FEE TRANSMITTAL for FY 2004

Effective 10/01/2003. Patent fees are subject to annual revision.

☐ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$)  
330.00

## Complete if Known

Application Number	09/854,179
Filing Date	May 11, 2001
First Named Inventor	John P. Erspamer
Examiner Name	N. B. Patel
Art Unit	3743
Attorney Docket No.	01313/100G996-US2

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## FEE CALCULATION

### 1. BASIC FILING FEE

Large Entity		Small Entity		Fee Description	Fee Paid
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
1001	770	2001	385	Utility filing fee	
1002	340	2002	170	Design filing fee	
1003	530	2003	265	Plant filing fee	
1004	770	2004	385	Reissue filing fee	
1005	160	2005	80	Provisional filing fee	

SUBTOTAL (1) (\$)  
0.00

### 2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

	Extra Claims	Fee from below	Fee Paid
Total Claims		x	
Independent Claims		x	
Multiple Dependent			

Large Entity		Small Entity		Fee Description
Fee Code	Fee (\$)	Fee Code	Fee (\$)	
1202	18	2202	9	Claims in excess of 20
1201	86	2201	43	Independent claims in excess of 3
1203	290	2203	145	Multiple dependent claim, if not paid
1204	86	2204	43	** Reissue independent claims over original patent
1205	18	2205	9	** Reissue claims in excess of 20 and over original patent

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0.00

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## FEE CALCULATION (continued)

### 3. ADDITIONAL FEES

Large Entity		Small Entity		Fee Description	Fee Paid
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
1051	130	2051	65	Surcharge - late filing fee or oath	
1052	50	2052	25	Surcharge - late provisional filing fee or cover sheet.	
1053	130	1053	130	Non-English specification	
1812	2,520	1812	2,520	For filing a request for <i>ex parte</i> reexamination	
1804	920*	1804	920*	Requesting publication of SIR prior to Examiner action	
1805	1,840*	1805	1,840*	Requesting publication of SIR after Examiner action	
1251	110	2251	55	Extension for reply within first month	
1252	420	2252	210	Extension for reply within second month	
1253	950	2253	475	Extension for reply within third month	
1254	1,480	2254	740	Extension for reply within fourth month	
1255	2,010	2255	1,005	Extension for reply within fifth month	
1401	330	2401	165	Notice of Appeal	
1402	330	2402	165	Filing a brief in support of an appeal	330.00
1403	290	2403	145	Request for oral hearing	
1451	1,510	1451	1,510	Petition to institute a public use proceeding	
1452	110	2452	55	Petition to revive - unavoidable	
1453	1,330	2453	665	Petition to revive - unintentional	
1501	1,330	2501	665	Utility issue fee (or reissue)	
1502	480	2502	240	Design issue fee	
1503	640	2503	320	Plant issue fee	
1460	130	1460	130	Petitions to the Commissioner	
1807	50	1807	50	Processing fee under 37 CFR 1.17(q)	
1806	180	1806	180	Submission of Information Disclosure Stmt	
8021	40	8021	40	Recording each patent assignment per property (times number of properties)	
1809	770	2809	385	Filing a submission after final rejection (37 CFR 1.129(a))	
1810	770	2810	385	For each additional invention to be examined (37CFR 1.129(b))	
1801	770	2801	385	Request for Continued Examination (RCE)	
1802	900	1802	900	Request for expedited examination of a design application	

Other fee (specify)

\*Reduced by Basic Filing Fee Paid

SUBTOTAL (3) (\$)  
330.00

## SUBMITTED BY

(Complete (if applicable))

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Signature		Date	June 21, 2004		

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07278

PATENT TRADEMARK OFFICE

Docket No: 01313/100G996-US2



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of: Erspamer, John P., et al.

Serial No.: 09/854,179

Art Unit: 3743

Confirmation No.: 7219

Filed: May 11, 2001

Examiner: Nihir B. Patel

**For: ABSORBENT STRUCTURE WITH INTEGRAL VAPOR TRANSMISSIVE  
MOISTURE BARRIER**

APPEAL BRIEF

Hon. Commissioner of  
Patents and Trademarks  
Washington, DC 20231

Sir:

Appellants submit this Appeal Brief in triplicate as required by 37 C.F.R.

§1.192. A check in the amount of \$330.00 for the required fee pursuant to 37 C.F.R. §§1.192  
and 1.17(c) for filing this appeal brief is enclosed. A Notice of Appeal was filed on April 21,  
2004.

06/25/2004 CNGUYEN 00000095 09854179

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### **REAL PARTY IN INTEREST**

The real party in interest is BKI Holding Corporation.

### **RELATED APPEALS AND INTERFERENCES**

Appellants' attorney is not at this time aware of any related appeals and/or interferences which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

### **STATUS OF CLAIMS**

Claims 1-50 are pending and are appealed.

### **STATUS OF AMENDMENTS**

Subsequent to the Final Office Action of October 21, 2003, Applicants held an interview with Examiner Patel on February 18, 2004 in an attempt to clarify the issues, and filed an Amendment After Final Action on February 23, 2004 ("Response") in accordance with the examiner's recommendation. No amendments to the claims were made in the Response. An Advisory Action dated April 29, 2004 indicates in box number 2 that "The proposed amendment(s) were not entered." Applicants interpret this to mean that the comments in the Response were not entered. The Advisory Action of April 29, 2004 also indicates in box number 5 that the request for reconsideration has been considered but does not place the application in condition for allowance because "[i]n a broad sense the word integral can be defined as a product formed as a unit with another part[] as the Hoey reference shows" (see page 2 of the April 29, 2004 Advisory Action).

## **SUMMARY OF INVENTION**

The present invention relates to a novel unitary absorbent core useful in personal care absorbent products such as disposable diapers, panty liners, incontinent articles and the like. Specifically, the absorbent core includes a fibrous absorbent layer having an upper fluid receiving surface and a lower surface with a hydrophobic vapor-transmissive moisture barrier integral with the lower surface of the absorbent layer. The inventive unitary structure with a vapor-transmissive moisture barrier integral with the lower surface (see Fig. 3) has significant advantages over prior art conventional absorbent structures (see Fig. 1) and breathable absorbent structures (see Fig. 2). Specifically, the presently claimed unitary absorbent core is desirable for use in an absorbent product as it is thinner, more comfortable, and less expensive to manufacture than most absorbent products (specification ¶¶ 0013, 0014).<sup>1</sup> The unitary absorbent core also allows for simple conversion to a finished absorbent product, is breathable yet provides a moisture barrier, and has softness and drape (specification ¶¶ 0015, 0016, 0017). The moisture barrier of the presently claimed invention allows for the transmission of moisture vapor but does not allow liquid materials to pass (specification ¶0018). The ability to transmit moisture vapor but not liquids is achieved because a continuous film over the lower surface of the absorbent layer is not formed (specification ¶0061). Instead, the required "vapor-transmissive moisture barrier integral with the lower surface" provides that the barrier material at least partially coats at least some of the individual fibers of the absorbent layer (specification ¶0061). The absorbent layer remains vapor-transmissive because partially

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<sup>1</sup> References to the specification herein refer to the published application U.S. 20020013560.

coating at least some of the individual fibers leaves substantially open the pore structure between the untreated fibers (specification ¶0061).

In the state of the art of personal care absorbent products, materials for such uses are often described as having a "top" or a target side, and a bottom. It is understood that the top of such a material is the side that will face the user or wearer of the article, while the "bottom" will be the side away from the user. The insult for which a material is designed to accommodate first contacts the "top" of the material. Generally, the top and bottom have different functions and are not interchangeable. While the top part of the material is designed to accept the insult and move it to a storage element portion, the bottom is designed to contain the insult and to prevent it from soiling the clothing of the wearer. Thus, the vapor transmissive moisture barrier of this invention has two functions: (1) to prevent liquid transmission through the bottom of the article which would soil the wearer's clothing; and (2) to allow moisture vapors to pass through the bottom of the article, imparting breathability and therefore more comfort to the wearer.

In addition, none of the prior art references at issue herein provide for the production of a unitary absorbent core as required by the claims. "[T]he unitary structure is constructed by assembling the strata in a continuous manner in a series of unit operations which results in the production of the unitary absorbent core" (specification ¶0047). It "is produced in a continuous manner using airlaid technology, where an individual forming head provides material for a single application of a froth or foam which produces the vapor-transmissive moisture barrier, and may include compression and calendering and drying operations" (specification ¶0047). Specifically, the process involves "producing a fibrous

absorbent layer" and "applying to the lower surface of the fibrous absorbent layer a hydrophobic material which at least partially coats at least some of the fibers of the lower surface of the absorbent layer" (claim 29). In contrast to the prior art, "[t]he strata of the unitary structure is not an assembly or laminate of preformed layers or plies which are assembled on a converting line" (specification ¶0047). Accordingly, the process for the production of the unitary absorbent core of the present invention is not an assembly or laminate, but instead requires direct application of a "hydrophobic material which at least partially coats at least some fibers of the lower surface of the absorbent layer" (claim 29).

## **ISSUES**

Are claims 1-50 patentable under 35 U.S.C. §103(a) over various cited prior art references? The specific issues are detailed as follows:

1. Are claims 1-9, 24-29, 31, 33, 34, 44, and 45 patentable under 35 U.S.C. § 103(a) over Hoey (U.S. Patent No. 4,000,028) in view of Lariviere (U.S. Patent No. 6,515,195)?
2. Are claims 10-12 patentable under 35 U.S.C. § 103(a) over Hoey in view of VanGompel (U.S. Patent no. 6,132,410)?
3. Are claims 13-15 patentable under 35 U.S.C. § 103(a) over Hoey in view of Ferguson (U.S. Patent No. 4,341,217)?
4. Is claim 16 patentable under 35 U.S.C. § 103(a) over Hoey in view of Lasko (U.S. Patent No. 6,277,104)?
5. Are claims 17-20 patentable under 35 U.S.C. § 103(a) over Hoey in view of Keuhn (U.S. Patent No. 6,238,379)?
6. Is claim 36 patentable under 35 U.S.C. § 103(a) over Hoey in view of Lubnin (U.S. Patent No. 6,020,438)?
7. Is claim 37 patentable under 35 U.S.C. § 103(a) over Hoey in view of Chen (U.S. Patent No. 6,486,379)?



8. Are claims 38-39 patentable under 35 U.S.C. § 103(a) over Hoey in view of Yong (WO 92/11655A2)?
9. Are claims 21-23, 46 and 47 patentable under 35 U.S.C. § 103(a) over Hoey in view of Roslansky (U.S. Patent No. 6,371,950)?
10. Is claim 40 patentable under 35 U.S.C. § 103(a) over Lubnin in view of Paul (U.S. Patent No. 6,503,525)?
11. Is claim 48 patentable under 35 U.S.C. § 103(a) over Hoey in view of Roe (U.S. Patent No. 6,384,296)?
12. Is claim 49 patentable under 35 U.S.C. § 103(a) over Hoey in view of Graef I (U.S. Patent No. 6,525,240)?
13. Is claim 50 patentable under 35 U.S.C. § 103(a) over Hoey in view of Shirayanagi (U.S. Patent No. 5,366,792)?
14. Is claim 41 patentable under 35 U.S.C. § 103(a) over Hoey in view of Graef II (U.S. Patent Application Publication No. 2002/0007169)?
15. Is claim 42 patentable under 35 U.S.C. § 103(a) over Hoey in view of Woon (U.S. Patent Application Publication No. 2002/0019614)?

#### **GROUPING OF CLAIMS**

Claims 1-9, 24-29, 31, 33, 34, 44, and 45 stand or fall together.

Claims 10-12 stand or fall together.

Claims 13-15 stand or fall together.

Claims 17-20 stand or fall together.

Claims 38-39 stand or fall together.

Claims 21-23, 46, and 47 stand or fall together.

#### **ARGUMENT**

Claims 1-50 stand rejected under 35 U.S.C. §103(a) as obvious over various prior art references; specifically Hoey combined with another reference (Issues 1-9, and 11-

15), and Lubnin in view of Paul (Issue 10). The examiner contends that "[i]n a broad sense, the word integral can be defined as a product formed as a unit with another part[] as the Hoey reference shows" (see page 2 of the April 29, 2004 Advisory Action).

Contrary to the examiner's assertions, each combination of references cited by the examiner, taken as a whole, does not suggest the claimed unitary absorbent core, or the process of making the unitary absorbent core. The unitary absorbent core having a "lower surface with a hydrophobic vapor-transmissive moisture barrier integral with the lower surface of the absorbent layer" as set forth in claims 1 and 29 is not suggested in any of the combinations of references cited by the examiner taken as a whole. This unitary, individual structure that imparts absorbency, vapor-transmissiveness, and at the same time moisture impermeability, renders the claimed structure unobvious over each combination of references because none of the references as a whole suggest such a structure as defined by the claims. The prior art references as a whole suggest products having different elements that are then bonded together to impart absorbency, vapor-transmissiveness, and moisture impermeability. It would not be obvious to substitute the claimed unitary absorbent core for a prior art laminated structure because a unitary absorbent core having "a hydrophobic vapor-transmissive moisture barrier integral with the lower surface of the absorbent layer" (claim 1) prepared by applying a hydrophobic material directly to the lower surface of a fibrous absorbent layer (claim 29) in one unit operation as part of a continuous process, is a technological departure from absorbent structures and processes of producing absorbent structures in the art. The claimed unitary absorbent core achieves absorbability, breathability, and moisture impermeability (claims 1 and 29), is thinner (§0013), and is less expensive to manufacture

(¶0014). Not one combination of references achieves these significant characteristics in a single, unitary structure, or in a continuous process in a series of unit operations.

**1. CLAIMS 1-9, 24-29, 31, 33, 34, 44, AND 45 ARE PATENTABLE UNDER SECTION 103(a) BECAUSE THE UNITARY ABSORBENT CORE AND THE PROCESS OF MAKING THE UNITARY ABSORBENT CORE ARE NON-OBVIOUS OVER THAT DESCRIBED IN HOEY IN VIEW OF LARIVIERE**

Claims 1 and 29 require a unitary absorbent core comprising "a hydrophobic vapor-transmissive moisture barrier integral with the lower surface of the absorbent layer," so designed to prevent liquid from flowing out of the unitary absorbent core while still allowing breathability. Claim 29 further requires a process for the production of a unitary absorbent core comprising "(a) producing a fibrous absorbent layer having upper and lower surfaces, [and] (b) applying to the lower surface of the fibrous absorbent layer a hydrophobic material which at least partially coats at least some of the fibers of the lower surface of the absorbent layer."

Hoey discloses useful absorbent materials that are an "element of the pad" (col. 12, line 4). In column 1 at line 48 Hoey states, "...the invention relates to a flexible absorbent pad comprising a top layer of polymer foam material which is permeable to liquids, an underlying layer of liquid-absorbent material and a bottom film of flexible, moisture-impervious material... ." Accordingly, the elements of the pad of Hoey are "a top layer of a crushed polymer latex foam bonded to either a non-woven which is bonded to an absorbent layer or bonded directly to the absorbent layer, and which in turn is bonded to a flexible, liquid impermeable bottom layer" (col. 1, lines 8-13). Figures 1-4 depict a pad having an absorbent layer that is bonded with an adhesive to a liquid-impermeable film or gauze (see, *inter alia*,

Abstract, and col. 1, lines 8-20). The absorbent pad of Hoey achieves moisture impermeability by bonding a liquid impermeable film or gauze with adhesive to the absorbent layer.

Lariviere discloses an absorbent article with a cover layer described as a "moisture barrier" that includes fibers substantially coated with hydrophobic material (Lariviere, col. 4, lines 45-50). This cover layer is different than the "hydrophobic vapor-transmissive moisture barrier integral with the lower surface of the absorbent layer" because it "contain[s] a great number of large pores" and "is intended to take-up body fluid rapidly" (col. 4, lines 34-36). Accordingly, the moisture barrier of Lariviere "allows fluid to pass through it readily" in contrast to the claimed "hydrophobic vapor-transmissive moisture barrier integral with the lower surface of the absorbent layer" of the unitary absorbent core that is designed to prevent liquid transfer and at the same time impart breathability (e.g., vapor-transmissiveness).

Lariviere achieves moisture impermeability of its absorbent article by using a multi-layer structure that comprises a "barrier layer which is substantially adjacent to [a] second absorbent layer and impervious to liquid absorbed by the second absorbent layer" (col. 3, lines 2-4). The barrier layer and the cover layer "are joined along their marginal portions so as to form an enclosure or flange seal that maintains the absorbent system captive" (col. 10, lines 3-5). The "joint may be made by means of adhesives, heat-bonding, ultrasonic bonding, radio frequency sealing, mechanical crimping, and the like" (col. 10, lines 6-8).

The bonded layers of Hoey, in addition to the six described features of Lariviere (at least one of which does not describe the presently claimed invention) do not provide motivation for one skilled in the art to combine the disclosures to arrive at the claimed

invention. This is because Hoey teaches achievement of moisture-impermeability by bonding a liquid impermeable film or gauze to the absorbent layer. Hoey does not teach one skilled in the art to provide a "lower surface with a hydrophobic vapor-transmissive moisture barrier integral with the lower surface of the absorbent layer." The teaching of Lariviere would not have further motivated a person having ordinary skill in the art to practice the claimed unitary absorbent core that imparts moisture impermeability and vapor-transmissiveness in view of Hoey because Lariviere also achieves moisture impermeability by using a bonded multi-layer structure. The multi-layer structure of Lariviere provides a cover layer and barrier layer bonded together to form an enclosure around the absorbent system. The combination of Hoey in view of Lariviere would have resulted in a multi-layer structure having bonded elements, so made by means of adhesives, heat-bonding, ultrasonic bonding, and the like, and would not have resulted in the claimed unitary absorbent core having a "lower surface with a hydrophobic vapor-transmissive moisture barrier integral with the lower surface of the absorbent layer."

The combination of Hoey in view of Lariviere also does not suggest a process for the production of a unitary absorbent core "assembled... in a continuous manner in a series of unit operations" (specification ¶0047) as required by the present invention. In contrast, Hoey and Lariviere suggest bonding, adhesives, and the like, as essential elements of the absorbent structures. Such elements are necessary to combine the elements of the reference absorbent structures, but are absent from those of the claimed invention of this appeal.

Furthermore, the use of adhesives and bonding suggests that the structures are formed from laminates of preformed layers or plies which are then assembled to produce an absorbent structure on a converting line. The necessity of bonding and adhesives, and

production on a converting line are completely absent from the claimed structure and the claimed process for production. The claimed structure does not use adhesives because it is a unitary absorbent core having a claimed "lower surface with a hydrophobic vapor-transmissive moisture barrier integral" therewith, and the process of producing the claimed structure is not on a converting line because it is produced in a continuous manner in a series of unit operations. Accordingly, the combination of Hoey and Lariviere does not suggest the construction of a unitary absorbent core having moisture impermeability and breathability that does not contain adhesives, is not bonded, and further is produced in a continuous manner in a series of unit operations.

As noted above, there is no motivation to combine the references, motivation which is a requirement of the law. *In re Rouffet*, 149 F.3d 1350, 1357, 47 USPQ2d 1453, 1457-8 (Fed. Cir. 1998) (finding that a rejection based on a *prima facie* case of obviousness was improper where the combination of references taught every element of the claimed invention, but lacked a motivation to combine). Furthermore, even when combined through the impermissible use of hindsight, the various elements of the cited references cannot be combined in any way to produce the claimed invention. Accordingly, the Office has failed to make a *prima facie* case of obviousness.

Claims 1-9, 24-29, 31, 33, 34, 44, and 45 would not have been obvious over Hoey in view of Lariviere because the references as a whole do not suggest the claimed unitary absorbent core. Therefore, reversal of the rejection over Hoey in view of Lariviere is required.

**2. CLAIMS 10-12 ARE PATENTABLE UNDER SECTION 103(a) BECAUSE THE UNITARY ABSORBENT CORE IS NON-OBVIOUS OVER THAT DESCRIBED IN HOEY IN VIEW OF VANGOMPEL**

As noted above, claim 1 from which claims 10, 11, and 12 depend, recites a unitary absorbent core having "a lower surface with a hydrophobic vapor-transmissive moisture barrier integral with the lower surface of the absorbent layer." Claim 10 requires a unitary absorbent core "having a hydrohead of 30 mm or more."

By contrast, Hoey as noted above, describes an absorbent pad having a liquid-impermeable layer bonded to an absorbent layer. A person having ordinary skill in the art would readily infer from Hoey that to develop an absorbent article with moisture impermeability, it is necessary to bond a top layer of a crushed polymer latex foam to "either a non-woven which is bonded to an absorbent layer or bonded directly to the absorbent layer, and which in turn is bonded to a flexible, liquid impermeable bottom layer" (col. 1, lines 9-14).

VanGompel discloses an absorbent article consisting of multiple parts including, *inter alia*, a backsheet that can support a hydro head of 45 cm without leakage (col. 8, lines 55-58). This absorbent article achieves improved resistance to leakage (moisture impermeability), and an improved fit (col. 2, lines 13-15) by way of the multiple parts including a liquid impermeable backsheet, a liquid permeable topsheet, a retention portion therebetween, body panels, and an expandable attachment section (col. 1, line 52 to col. 2, line 5).

Neither Hoey nor Van Gompel provide motivation for one skilled in the art to arrive at the claimed invention. Hoey teaches moisture impermeability by bonding a liquid

impermeable layer to the bottom of an absorbent layer, while Van Gompel provides moisture impermeability by bonding a backsheet that can support a hydrohead of 45 cm without leakage to other components of a complex, multipartite structure (col. 26, lines 27-30). VanGompel uses adhesives to bond the components together (col. 26, lines 27-30). Accordingly, Hoey and Van Gompel suggest bonding and adhesives as essential elements of the absorbent structures to achieve moisture impermeability and breathability. This is in direct contrast to the claimed unitary absorbent core. The unitary absorbent core does not contain bonded elements or adhesives. Instead, the claimed core has a "lower surface with a hydrophobic vapor-transmissive moisture barrier integral with the lower surface of the absorbent layer" and wherein the unitary absorbent core has a hydrohead of 30 mm, 50 mm, or 70 mm or more, as claimed in claims 10, 11, and 12, respectively. Accordingly, Hoey in view of VanGompel suggest assembly of pre-existing layers with adhesives in contrast to the unitary construction of the present invention.

In addition, the use of bonding and adhesives to keep the elements of the multipartite structures together as suggested by the combination of Hoey and VanGompel implies that the structures are formed from an assembly or laminate of preformed layers or plies which are then put together on a converting line. In contrast, the claimed unitary absorbent core is constructed in a continuous manner in a series of unit operations, providing an integral structure and rendering the use of bonding and adhesives completely unnecessary from the claimed unitary absorbent core having a hydrohead value of 30 mm, 50 mm, or 70 mm. Accordingly, the teaching of the multiple-part structure of Van Gompel in view of Hoey



would not have further helped one skilled in the art to practice the claimed unitary absorbent core

Hoey in view of VanGompel does not render claims 10, 11, and 12 obvious because the references, taken as a whole, do not suggest the claimed unitary absorbent core. Therefore, reversal of the rejection over Hoey in view of VanGompel is required.

**3. CLAIMS 13-15 ARE PATENTABLE UNDER SECTION 103(a) BECAUSE THE UNITARY ABSORBENT CORE IS NON-OBVIOUS OVER THAT DESCRIBED IN HOEY IN VIEW OF FERGUSON**

Hoey, as noted above does not describe a "unitary absorbent core" as claimed in claim 1 from which claims 13-15 depend. A person having ordinary skill in the art would infer from Hoey that a vapor-transmissive, moisture impermeable absorbent structure must contain a liquid-impermeable layer bonded to an absorbent layer. Claim 13 requires a unitary absorbent core "having a strikethrough of 1.8 g or less."

Ferguson discloses an absorbent core encased in a homogeneous outer wrap. The homogenous outer wrap has a top sheet which permits liquid to rapidly penetrate and a back sheet which retards liquid flow to an outer surface of the back sheet portion (col. 7, lines 13-22). Ferguson teaches that materials having a bleed-through value "of less than about 0.075 grams are satisfactory for use as outer wraps" (emphasis added) (co. 7, lines 9-12). To achieve a vapor-transmissive, moisture impermeable absorbent structure having a bleed-through value as claimed, a person having ordinary skill in the art based on Ferguson would utilize an outer wrap.

Neither Hoey nor Ferguson provide motivation for one skilled in the art to combine two disclosures to arrive at the claimed invention. Hoey provides motivation to bond

a liquid impermeable layer to achieve moisture impermeability, while Ferguson achieves moisture impermeability and a bleed-through value by way of an outer wrap. If anything, the teaching of Hoey in view of Ferguson would have motivated one to encase the absorbent pad of Hoey in an outer wrap to achieve bleed-through values, and would not have provided a unitary absorbent core as claimed having a "lower surface with a hydrophobic vapor-transmissive moisture barrier integral with the lower surface of the absorbent layer" with a strikethrough of 1.8 g, 1.2 g, or 0.7 g or less as claimed in claims 13, 14, and 15, respectively. Accordingly, the teaching of Hoey in view of Ferguson would not have further motivated one skilled in the art to provide the claimed unitary absorbent core and strikethrough values.

Accordingly, Hoey in view of Ferguson does not render claims 13, 14, and 15 obvious because the references, taken as a whole, do not suggest the claimed unitary absorbent core. Reversal of the rejection over Hoey in view of Ferguson is required.

**4. CLAIM 16 IS PATENTABLE UNDER SECTION 103(a) BECAUSE THE UNITARY ABSORBENT CORE IS NON-OBVIOUS OVER THAT DESCRIBED IN HOEY IN VIEW OF LASKO**

Hoey does not describe a "unitary absorbent core" having "a hydrophobic vapor-transmissive moisture barrier integral with the lower surface of the absorbent layer" as claimed in claim 1 from which claim 16 depends. Claim 16 requires a unitary absorbent core "having an air permeability of 18 m<sup>3</sup>/min/m<sup>2</sup> or greater." A person having ordinary skill in the art would infer from Hoey that an absorbent article must contain a liquid impermeable layer bonded to an absorbent layer to achieve vapor-transmissiveness and moisture permeability.

Lasko discloses barrier structures having an air permeability of  $18 \text{ m}^3/\text{min}/\text{m}^2$  ( $60\text{ft}^3/\text{min}/\text{ft}^2$ ) or greater, with an absorbent structure there between (col. 4, lines 55-57). The air permeable barrier structure of Lasko is adjacent to the absorbent core (col. 6, lines 2-18; col. 12, line 55), and not integral with the lower surface of the absorbent layer.

Neither Hoey nor Lasko provide motivation for one skilled in the art to combine the two disclosures to arrive at the claimed invention. Hoey teaches moisture impermeability by bonding a liquid impermeable layer to the bottom of an absorbent layer, and Lasko teaches liquid impermeability and breathability by barrier structures added adjacent to the absorbent core. There is no suggestion in Hoey to combine the absorbent pad with the barrier structure of Lasko to impart moisture impermeability and breathability (e.g., vapor-transmissiveness) as claimed in claim 16. Both Hoey and Lasko suggest additional layers and in no way provide a person having ordinary skill in the art the motivation to arrive at a unitary absorbent core having a "lower surface with a hydrophobic vapor-transmissive moisture barrier integral with the lower surface of the absorbent layer."

Furthermore, the teaching of Lasko in view of Hoey would not have helped one skilled in the art to arrive at the claimed unitary absorbent core having the claimed air permeability values because Lasko suggests the addition of a barrier structure adjacent to the absorbent core that may be "fixed or otherwise adhered to the surface of the absorbent structure" (col. 9, lines 15-16), similar to the Hoey teaching of bonding a liquid impermeable bottom layer to the absorbent layer. The adhesives and bonding in Hoey in view of Lasko are essential to the creation of a liquid impermeable, moisture impermeable absorbent structures having an air permeability of  $18 \text{ m}^3/\text{min}/\text{m}^2$  or greater. Lasko in view of Hoey do not suggest

providing the claimed unitary absorbent core having "a hydrophobic vapor-transmissive moisture barrier integral with the lower surface of the absorbent layer" that does not utilize adhesives or bonding. Therefore, the teaching of Hoey in view of Ferguson would not have further helped one skilled in the art to arrive at the claimed unitary absorbent core with airpermeability value of  $18 \text{ m}^3/\text{min}/\text{m}^2$  or greater.

Accordingly, Hoey in view of Lasko does not render claim 16 obvious because the references, taken as a whole, do not suggest the claimed unitary absorbent core. Reversal of the rejection over Hoey in view of Lasko is required.

**5. CLAIMS 17-20 ARE PATENTABLE UNDER SECTION 103(a)  
BECAUSE THE UNITARY ABSORBENT CORE IS NON-  
OBVIOUS OVER THAT DESCRIBED IN HOEY IN VIEW OF  
KEUHN**

Hoey does not disclose the "unitary absorbent core" of claim 1 from which claims 17, 18, 19, and 20 depend having "a lower surface with a hydrophobic vapor-transmissive moisture barrier integral with the lower surface of the absorbent layer." Claim 17 requires a unitary absorbent core "having a water vapor transmission rate of  $500 \text{ g}/\text{m}^2/24\text{hr}$  or greater." Hoey instead discloses an absorbent article having a liquid impermeable layer bonded to an absorbent layer to achieve absorbability and breathability. Therefore one having ordinary skill in the art would readily infer from Hoey that in order to achieve absorbability and breathability, a back sheet layer must be bonded to an absorbent layer. Hoey does not provide direction to one of ordinary skill in the art to arrive at the presently claimed invention.

Keuhn discloses an absorbent article having a water vapor transmission rate of  $3000 \text{ g}/\text{m}^2/24 \text{ hr}$  or greater which is imparted by a backsheet (col. 10, lines 30-45). In addition to the vapor permeable backsheet, the absorbent article of Keuhn includes a liquid

permeable topsheet, and an absorbent body located between the backsheet and the topsheet (see Abstract). The various components of Keuhn are assembled to each other by using "adhesive, sonic bonds, thermal bonds, or combinations thereof" (col. 10, lines 19-22).

Neither Hoey nor Keuhn provide motivation for one skilled in the art to combine the two disclosures to arrive at the claimed invention. Hoey achieves moisture impermeability by bonding a liquid impermeable layer to the bottom of an absorbent layer. Similarly, Keuhn achieves moisture impermeability and water transmission values by bonding a topsheet, backsheet, and an absorbent body there between by using, *inter alia*, adhesive. Accordingly, to arrive at an absorbent article having moisture impermeability and specific water transmission values, one having skill in the art would be motivated based upon the teachings of Hoey and Keuhn to bond multiple layers together.

Furthermore, the teaching of Keuhn in view of Hoey would not have further helped one skilled in the art to arrive at the presently claimed unitary absorbent core because Hoey and Keuhn both use bonding and adhesives, for example, hot melt adhesives (Keuhn col. 10, line 25) to keep the multiple layers together. In combination, Hoey and Keuhn do not suggest to one having skill in the art the claimed unitary absorbent core having a "lower surface with a hydrophobic vapor-transmissive moisture barrier integral with the lower surface of the absorbent layer" and having a water vapor transmission rate as claimed in claims 17 to 20.

In addition, the use of bonding and adhesives, for example, a hot melt adhesive (Keuhn col. 10, line 25), to keep the elements of the multipartite structures together as suggested by the combination of Hoey and Keuhn, implies that the structures constitute an

assembly or laminate of preformed layers or plies which are assembled on a converting line. In contrast, the claimed unitary absorbent core is made by construction in a continuous manner in a series of unit operations, rendering the use of bonding and adhesives completely absent from the claimed unitary absorbent core having a water vapor transmission rate as claimed. Accordingly, the teaching of the multiple-part structure of Keuhn in view of Hoey would not have further helped one skilled in the art to practice the claimed unitary absorbent core

Hoey in view of Keuhn does not render claims 17, 18, 19, and 20 obvious under 35 U.S.C. §103(a) because the references taken as a whole do not suggest the claimed unitary absorbent core. Therefore, reversal of the rejection over Hoey in view of Keuhn is required.

**6. CLAIM 36 IS PATENTABLE UNDER SECTION 103(a) BECAUSE THE PROCESS OF MAKING THE UNITARY ABSORBENT CORE IS NON-OBVIOUS OVER THAT DESCRIBED IN HOEY IN VIEW OF LUBNIN**

The claimed method of claim 29 from which claim 36 depends provides a “process for the production of a unitary absorbent core” having “a lower surface with a hydrophobic vapor-transmissive barrier integral with the lower surface of the absorbent layer.” The process comprises “producing a fibrous absorbent layer” and “applying to the lower surface of the fibrous absorbent layer of hydrophobic material which at least partially coats some of the fibers of the lower surface of the absorbent layer” (emphasis added). Claim 36 further provides a process for the production of a unitary absorbent core “wherein the emulsion polymer includes a hydrophobicity agent.”

By contrast, Hoey discloses a process for making a flexible absorbent pad comprising a top layer, an underlying layer, and a bottom film by forming a top layer of polymer foam materials. (col. 1, lines 48-64). The top layer of Hoey is a flat open cell

structure, (col. 1, line 44), which is specifically designed to be permeable to liquids (col. 1, line 50). Therefore, a person having ordinary skill in the art would readily infer from Hoey that to make an absorbent pad, a top layer of polymer foam that is permeable to liquids should be formed.

Lubnin discloses an emulsion polymer and a process for making the polymer.

Neither Hoey nor Lubnin provide motivation for one of ordinary skill in the art to combine the two disclosures to arrive at the claimed process. Hoey suggests the desirability of application of a polymer to the top layer of an absorbent pad, while Lubnin discloses different types of polymers. Even if Lubnin describes additional polymers not applied in Hoey, it provides no suggestion to apply a polymer to the lower surface of a fibrous absorbent layer and to apply a polymer in such a manner so that liquids may not permeate. Accordingly, the teaching of Lubnin would not have further motivated one skilled in the art to practice the claimed method in view of Hoey.

For these reasons, Hoey in view of Lubin does not render claim 36 obvious under 35 U.S.C. §103(a) because the references taken as a whole do not suggest the claimed process for making a unitary absorbent core. Therefore, reversal of the rejection over Hoey is view of Lubnin is required.

**7. CLAIM 37 IS PATENTABLE UNDER SECTION 103(a) OVER  
BECAUSE THE PROCESS OF MAKING THE UNITARY  
ABSORBENT CORE IS NON-OBVIOUS OVER THAT  
DESCRIBED IN HOEY IN VIEW OF CHEN**

The claimed method of claim 29 from which claim 39 depends provides a “process for producing a unitary absorbent core” having “a lower surface with a hydrophobic

vapor-transmissive barrier integral with the lower surface of The absorbent layer” (emphasis added). Claim 39 provides a unitary absorbent core comprising "three or more fibrous strata."

Hoey does not disclose such a process providing a barrier integral with the absorbent layer. Hoey instead provides a bottom liquid impermeable barrier layer bonded to an absorbent layer and a top layer of polymer foam. One having ordinary skill in the art would readily infer from Hoey that to make an absorbent pad, multiple layers plus a top layer of polymer foam should be provided.

Chen teaches combination of separately formed materials; including, for example, upper, central, lower absorbent members (col. 2, lines 1-25).

Neither Hoey nor Chen provide motivation for one skilled in the art to combine the two disclosures to arrive at the claimed invention. Hoey suggests production of an absorbent layer by bonding a bottom layer to an absorbent layer and forming a top layer of foam. Similarly, Chen provides a method for producing an absorbent article having multiple parts such as a lower absorbent part, a horizontal wicking barrier, an optional central rising part, a liquid impervious backsheet (col. 3). Both Hoey and Chen suggest production of an absorbent layer by assembly of multiple layers and in no way would provide a person having skill in the art with the suggestion to form a unitary absorbent core by (1) "producing a fibrous absorbent layer", and (2) "applying to the lower surface of the fibrous absorbent layer a hydrophobic material which at least partially coats at least some of the fibers of the over surface of the absorbent layer" as presently claimed.

Further, the teaching of Chen would not have further motivated one skilled in the art to practice the claimed method in view of the bonded elements of Hoey because Chen



also teaches a process for producing an absorbent article comprising multiple parts secured together wherein "the components [are] placed in proper relationship one to another, typically with online bonding at selected regions provided by spray adhesive, contact with ultrasonic horns or heated embossing elements, or other bonding means known in the art" (Chen col. 28, lines 37-41). Hoey in view of Chen suggests that the structures are an assembly or laminate of preformed layers or plies which are assembled on a converting line, instead of the claimed process for the production of a unitary absorbent core in a continuous manner using airlaid technology.

Accordingly, claim 37 is not obvious based upon the disclosure of Hoey in view of Chen because the references taken as a whole do not suggest the claimed process. Reversal of the rejection over Hoey in view of Chen is required.

**8. CLAIMS 38-39 ARE PATENTABLE UNDER SECTION 103(a)  
BECAUSE THE PROCESS OF MAKING THE UNITARY  
ABSORBENT CORE IS NON-OBVIOUS OVER THAT  
DESCRIBED IN HOEY IN VIEW OF YONG**

As noted above, the claimed method in claim 29 from which claims 38 and 39 depend provides a "process for the production of a unitary absorbent core" having "a lower surface with a hydrophobic vapor-transmissive moisture barrier integral with the lower surface of the absorbent layer" comprising "producing a fibrous absorbent layer" and "applying to the lower surface of the fibrous absorbent layer a hydrophobic material." Claim 38 recites a unitary absorbent core comprising "two or more fibrous strata" and claim 39 recites a unitary absorbent core comprising "three or more fibrous strata."

By contrast, Hoey as noted above provides a process for making an absorbent pad comprised of several layers by applying a polymeric foam to the top of the absorbent layer

and a flexible moisture impervious bottom film is bonded to the bottom of the absorbent layer. The top layer of Hoey is a flat, open cell structure (col. 1, line 44), which is permeable to liquids (col. 1, line 50). A person having ordinary skill in the art would readily infer from Hoey that the preparation of the absorbent pad is by an assembly or laminate of preformed layers or plies which are then assembled and bonded together on a converting line.

Yong teaches an absorbent article including a backsheet layer, a liquid permeable topsheet layer, and an absorbent body member which is sandwiched between the backsheet layer and topsheet layer (p. 5, lines 18-20). The absorbent body has three or more fibrous strata to provide an absorbent core having high-strength and low density.

Hoey in view of Yong does not provide motivation for one skilled in the art to combine the two disclosures to arrive at the claimed invention because Hoey produces an absorbent pad with bonding of elements, and Yong provides an absorbent article with multiple elements, likely bonded as well. Hoey and Yong both teach assembly of multiple layers to impart a strong moisture impermeable article. The combination of the references suggests assembly of the multi-component structures as a laminate of the components on a converting line. This is in contrast to the claimed unitary absorbent core having strata "produced in a separate unit operation as part of a continuous process". Neither Hoey nor Yong teach assembly in a separate unit operation as part of a continuous process.

Accordingly, Hoey in view of Yong does not render claims 38 and 39 obvious under 35 U.S.C. §103(a) because the references taken as a whole do not suggest the claimed process. Reversal of the rejection over Hoey in view of Yong is required.

**9. CLAIMS 21-23, 46 AND 47 ARE PATENTABLE UNDER SECTION 103(a) BECAUSE THE UNITARY ABSORBENT CORE AND THE BREATHABLE NONWOVEN MATERIAL IS NON-OBVIOUS OVER THAT DESCRIBED IN HOEY IN VIEW OF ROSLANSKY**

Claim 1 of the present invention from which claims 21 to 23 depend recite a unitary absorbent core having "a hydrophobic vapor-transmissive moisture barrier integral therewith". Claim 21 recites a unitary absorbent core "having a barrier effectiveness value of 30 mm or greater." Independent claims 46 and 47 recite a "breathable, nonwoven fibrous material" or a "breathable, partially fibrous or nonfibrous nonwoven material," respectively, having a "hydrophobic vapor-transmissive moisture barrier integral therewith." In accordance with the presently claimed invention, barrier effectiveness value is calculated from the combination of hydrohead and strikethrough (specification ¶¶0212, 0213).

As noted above, Hoey discloses an absorbent structure having elements that are bonded together.

Roslansky discloses an incontinence article having multiple components wherein the article has a capacity of urine of 50-500g (col. 9, lines 1-7). The components of Roslansky are bonded together by for example ultrasonic or adhesive bonding or mechanical or hydraulic needling (e.g., for fiber entanglement) (col. 4, lines 47-52 and col. 8, lines 6-10). Roslansky does not disclose a barrier effectiveness value of 75mm or greater as noted by the Examiner.

Hoey in view of Roslansky provides motivation for one skilled in the art to create a multi-component absorbent structure that is bonded together. The combination of Hoey in view of Roslansky would not have guided one having skill in the art to practice the claimed method because both do not teach a barrier effectiveness value as claimed, but instead

suggest bonding of multiple components to achieve an absorbent structure. Hoey and Roslansky suggest that the bonding and/or adhesives used in the prior art structures are an essential element. Such bonding and adhesives are completely absent from the claimed unitary absorbent core and breathable nonwoven material. Instead, the claimed absorbent core and breathable material have a "hydrophobic vapor-transmissive moisture barrier integral" therewith and do not contain bonding or adhesives. Accordingly, the suggestion or motivation to arrive at an absorbent structure with no adhesives or bonding that is moisture impermeable and breathable, and having the claimed barrier effectiveness value is in no way provided by the combination of Hoey and Roslansky.

Therefore, Hoey in view of Roslansky does not render claims 21-23, 46 and 47 obvious under 35 U.S.C. §103(a) because the references taken as a whole do not suggest the claimed unitary absorbent core. Reversal of the rejection over Hoey in view of Roslansky is required.

**10. CLAIM 40 IS PATENTABLE UNDER SECTION 103(a) BECAUSE THE PROCESS OF MAKING THE UNITARY ABSORBENT CORE IS NON-OBVIOUS OVER THAT DESCRIBED IN LUBNIN IN VIEW OF PAUL**

The process of claim 29 from which claim 40 depends recites a "unitary absorbent core" where a "hydrophobic material" is applied "to the lower surface of the fibrous absorbent layer". Claim 40 further provides a process for the production of the unitary absorbent core "wherein the process comprises providing a tissue having a basis weight of less than about 30 gsm, spraying the tissues with emulsion polymer binder having a dry basis weight of about 10 gsm or less and airlaying a fibrous stratum thereupon."

Lubnin, as noted above discloses an emulsion polymer and a process for making the polymer.

Paul teaches separately formed materials which must be combined and adhered to form a product (col. 40, lines 42-51). Paul discloses as one of its separately formed materials, a top sheet with a basis weight of 22 grams per square meter (col. 13, lines 22-26). No where in Lubnin or Paul is suggested "a process for the production of a unitary absorbent core...having...a lower surface with a hydrophobic vapor-transmissive moisture barrier integral with the lower surface of the absorbent layer" as set forth in claim 29, and claim 40 dependent therefrom.

Neither Lubnin nor Paul provide motivation for one skilled in the art to combine the two disclosures to arrive at the claimed invention. Lubnin discloses polymers, while Paul discloses a top sheet having a basis weight of 22 gsm. If anything, Lubnin suggests to Paul the addition of polymers for a top sheet to achieve the basis weight value. In contrast, the process of claim 40 provides a fibrous absorbent layer "having a basis weight of less than about 30 gsm" and "airlaying a fibrous stratum thereupon." Furthermore, the teaching of Paul would not provide one having skill in the art motivation to practice the claimed method in view of Lubnin as Paul discloses separately formed components of the absorbent structure that "are integrally assembled together employing various types of suitable attachment means, such as adhesive, sonic bonds, thermal bonds" and specifically, "hot-melt, pressure sensitive adhesive" (col. 11, lines 40-46). If anything, Paul in view of Lubnin suggests an assembly or laminate of preformed layers or plies which are assembled on a converting line instead of the claimed

process of producing a unitary absorbent core that is assembled using air-laid technology in a continuous manner in a series of unit operations.

For these reasons, Lubnin in view of Paul does not render claim 40 obvious under Section 103(a) because the references as a whole do not suggest the claimed process. Therefore, reversal of the rejection over Lubnin in view of Paul is required.

**11. CLAIM 48 IS PATENTABLE UNDER SECTION 103(a) BECAUSE THE BREATHABLE MATERIAL IS NON-OBVIOUS OVER THAT DESCRIBED IN HOEY IN VIEW OF ROE**

Claim 47 from which claim 48 depends recites a “breathable, partially fibrous or non-fibrous non-woven material...having a surface with a hydrophobic vapor-transmissive moisture barrier herewith.” Claim 48 provides a nonwoven material or structure "wherein the foamed constituent is a high internal phase emulsion (HIPE) foam."

The arguments previously made with respect to Hoey are repeated herein.

Roe is not pertinent to the problem to be solved. Roe teaches a disposable article comprising a responsive system having a sensor, an electrical actuator, and a feedback control loop (col. 23, lines 42-43). The responsive system is employed as a bodily waste isolation device (col. 2, lines 13-18).

Accordingly, neither Hoey nor Roe provide motivation for one skilled in the art to combine the two disclosures to arrive at the claimed invention. Hoey provides no suggestion that a responsive system in addition to the disclosed absorbent pad would arrive at the desired nonwoven material or structure as claimed. Furthermore, the teaching of Roe would in no way help one having ordinary skill in the art to arrive at the claimed invention. Roe discloses a bodily waste isolation device that is automated with an electrical actuator and is

clearly not within the scope of the art to suggest to one the desirability of arriving at the claimed invention in view of Hoey. Accordingly, claim 48 is patentable under 35 U.S.C. §103 because the breathable material of the present invention is non-obvious over that described in Hoey in view of Roe. Reversal of the rejection over Hoey in view of Roe is required.

**12. CLAIM 49 IS PATENTABLE UNDER SECTION 103(a) BECAUSE THE BREATHABLE MATERIAL IS NON-OBVIOUS OVER THAT DESCRIBED IN HOEY IN VIEW OF GRAEF I**

Claim 47 from which claim 49 depends recites "a breathable, partially fibrous or nonfibrous nonwoven material...having a hydrophobic vapor-transmissive moisture barrier integral therewith." Claim 49 provides a nonwoven material "wherein the material or structure is a combination comprising from about 50 to about 99 percent by weight of natural fibers, synthetic fibers or a mixture thereof."

The arguments previously made with respect to Hoey are repeated herein.

Graef I teaches a unitary stratified composite that can be manufactured and delivered in web form, where the first stratum serves as a liquid acquisition stratum and the second stratum serves to withdraw liquid from the first stratum and further serves as a temporary storage stratum (see col. 16, lines 9-25, and Abstract). The strata are connected in a transition zone wherein fibers extend from one strata to the other (col. 3, lines 64-67) and may also be bonded together (col. 3, lines 31-33).

Neither Hoey nor Graef I provide motivation for one skilled in the art to combine two disclosures to arrive at the claimed invention. Both Hoey and Graef I disclose absorbent articles with multiple layers and do not suggest "a breathable nonwoven fibrous material" as presently claimed. Furthermore, the teaching of Hoey in view of Graff I would

not have further motivated one skilled in the art to arrive at the claimed method as both of the references suggest formation of an absorbent structure having multiple layers that are bonded together by adhesives or by interconnection of fibers between the layers. The bonding of multiple layers contrasts with the scope of the presently claimed invention. Specifically, the claimed invention requires a breathable material "having a hydrophobic vapor-transmissive moisture barrier integral therewith."

Accordingly, claim 49 is patentable under Section 103(a) because the claimed breathable material is non-obvious over that described in Hoey in view of Graef I. Reversal of the rejection over Hoey in view of Graef I is required.

**13. CLAIM 50 IS PATENTABLE UNDER SECTION 103(a) BECAUSE  
THE BREATHABLE MATERIAL IS NON-OBVIOUS OVER  
THAT DESCRIBED IN HOEY IN VIEW OF SHIRAYANAGI**

Claim 47 from which claim 50 depends recites "a breathable, partially fibrous or non-fibrous non-woven material or structure... having a surface with a hydrophobic vapor-transmissive moisture barrier integral therewith" (see claim 47) "wherein the material or structure has been produced in a unitary process" (see claim 50).

The arguments previously made with respect to Hoey are repeated herein.

Shirayanagi teaches coupling of layers of non-woven fabric as a unitary structure by intermingling fibers of different layers by a water-jet working process (col. 3, lines 9-11, 23), but provides no teaching of a breathable material having a surface with a hydrophobic vapor-transmissive moisture barrier integral therewith.

Neither Hoey nor Shirayanagi provide motivation for one skilled in the art to combine the two disclosures to arrive at the claimed invention because both disclose the



desirability of coupling multiple layers together to arrive at an absorbent article. The references further suggest assembly on a converting line, which may include a water-jet process, and do not suggest production by a unitary process in a continuous manner in a series of unit operations. In contrast, the presently claimed invention claims a material "produced in a unitary process" that is, in a continuous manner in a series of unit operations. Accordingly, the teaching of Hoey in view of Shirayanagi would not guide one of ordinary skill in the art to practice the claimed material produced in a unitary process because together they do not suggest a material having a surface with a "hydrophobic vapor-transmissive moisture barrier integral therewith" that is "produced in a unitary process" as presently claimed.

Accordingly claim 50 is patentable under Section 103(a) because the claimed breathable material non-obvious over that described in Hoey in view of Shirayanagi. Reversal of the rejection over Hoey in view of Shirayanagi is required.

**14. CLAIM 41 IS PATENTABLE UNDER SECTION 103(a) BECAUSE THE PROCESS FOR THE PRODUCTION OF THE UNITARY ABSORBENT CORE IS NON-OBVIOUS OVER THAT DESCRIBED IN HOEY IN VIEW OF GRAEF II**

Claim 29 from which claim 41 depends sets forth a "process for the production of a unitary absorbent core" having "a vapor-transmissive moisture barrier integral therewith." Claim 41 provides a process "wherein the fibrous stratum contains fifty percent or more by weight of eucalyptus fibers."

The arguments previously made with respect to Hoey are repeated herein.

Graef II teaches a fibrous composite having three strata, with transition zones separating the strata (§§ 0027, 0029). The transition zones integrally connect adjacent strata by combining fibers from the adjoining strata (§0029). Graef II provides no teaching of the

unitary structure having a surface with a hydrophobic vapor-transmissive moisture barrier integral therewith.

Hoey in view of Graef II does not provide motivation for one skilled in the art to arrive at the claimed invention. While Hoey suggests a process for making an absorbent structure by bonding layers, Graef suggests a process for making an absorbent structure by transition zones adjoining fibers between layers. Accordingly, combining Hoey and Graef would suggest to one having skill in the art to create a multi-component structure assembled with either a process utilizing multiple layers and adhesives, or by processes that join fibers between layers, for example, forming wires (Graef II, ¶¶ 0116-0125). The bonding of multiple layers, or the creation of transition zones by a wire process contrasts with the scope of the presently claimed invention. The claimed process of the present invention is for a unitary absorbent core prepared by "applying to the lower surface of the fibrous absorbent layer a hydrophobic material which at least partially coats at least some of the fibers of the lower surface of the absorbent layer" that is produced in a continuous manner in a series of unit operations. Accordingly, the combination of Hoey and Graef II do not suggest the claimed process for the production of a unitary absorbent core that is constructed as claimed and in a continuous manner using airlaid technology.

Therefore, claim 41 is patentable under Section 103(a) because the claimed process is non-obvious over that disclosed in Hoey in view of Graef II. Reversal of the rejection over Hoey in view of Graef II is required.

**15. CLAIM 42 IS PATENTABLE UNDER SECTION 103(a) BECAUSE  
THE PROCESS FOR THE PRODUCTION OF THE UNITARY**

**ABSORBENT CORE IS NON-OBVIOUS OVER THAT  
DESCRIBED IN HOEY IN VIEW OF WOON**

Claim 29 from which claim 42 depends recites a “process for the production of a unitary absorbent core” having “a vapor-transmissive moisture barrier integral therewith.” Claim 42 provides a process “wherein the unitary absorbent core comprises one or more strata which are multibonded with an emulsion polymer binder and thermal bicomponent fiber binder.”

The arguments previously made with respect to Hoey are repeated herein.

Woon teaches a multicomponent absorbent structure (§ 0062) comprising components having matrices of stratified layers of fibrous material (§ 0070 to § 0072).

Neither Hoey nor Woon provide motivation for one skilled in the art to combine to two disclosures to arrive at the claimed invention. Both references suggest assembly of a multi-component structure to create an absorbent article, and neither provide motivation for a process for producing a fibrous absorbent layer by “applying to the lower surface of the fibrous absorbent layer a hydrophobic material which at least partially coats at least some of the fibers of the lower surface of the absorbent layer” as claimed. Woon combined with Hoey would not guide one having ordinary skill in the art to practice the claimed process for the production of a unitary absorbent core because none of the multi-components of Woon have a “hydrophobic vapor-transmissive moisture barrier integral with the lower surface” produced by the presently claimed process.

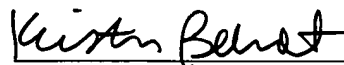
Accordingly, claim 42 is patentable under Section 103 because the references Hoey and Woon, taken as a whole, would not have suggested the claimed process. Reversal of the rejection over Hoey in view of Woon is required.

## CONCLUSION

Claims 1-50 are patentable under Section 103(a) in view of the combination of references recited in the fifteen issues detailed above. None of the combination of references as a whole provide a teaching or suggestion of a highly breathable unitary absorbent core comprising a fibrous absorbent layer having a "lower surface with a hydrophobic vapor-transmissive moisture barrier integral with the lower surface of the absorbent layer" or a "process for the production of a unitary absorbent core" having "a vapor-transmissive moisture barrier integral therewith." Moreover, when a rejection depends on a combination of prior art references, there must be some teaching, suggestion, or motivation to combine the references. In this instance, all of the rejections depend upon a combination of prior art references; however, none of the references provide motivation for one having skill in the art to combine the references to arrive at the presently claimed invention. Accordingly, claims 1-50 are patentable.

For the foregoing reasons, each rejection based on Hoey in view of a secondary prior art reference, and the rejection based on Lubnin in view of Paul, fail to render obvious the presently claimed invention and the final rejection of claims 1-50 should be reversed by the Board. Such a disposition is earnestly solicited.

Respectfully submitted



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**Appendix**  
**Claims at Issue on Appeal**  
**U.S. Serial No. 09/854,179**

1. A unitary absorbent core having a basis weight of about 75 gsm or greater, comprising a fibrous absorbent layer having an upper fluid receiving surface and a lower surface with a hydrophobic vapor-transmissive moisture barrier integral with the lower surface of the absorbent layer.
2. The unitary absorbent core of claim 1, wherein the absorbent layer comprises natural fibers, synthetic fibers or a mixture thereof.
3. The unitary absorbent core of claim 1, wherein the hydrophobic moisture barrier comprises a hydrophobic material which at least partially coats the fibers of the lower surface of the absorbent layer.
4. The unitary absorbent core of claim 3 wherein the hydrophobic material is a natural or synthetic polymer.
5. The unitary absorbent core of claim 1 further comprising from about 5 to about 90 percent by weight of SAP.
6. The unitary absorbent core of claim 1, wherein the core has a basis weight of from about 80 gsm to about 1000 gsm.
7. The unitary absorbent core of claim 6, wherein the core has a basis weight of from about 100 gsm to about 500 gsm.
8. The unitary absorbent core of claim 1, wherein the core has a density of from about 0.03 to about 0.7 g/cc.

9. The unitary absorbent core of claim 8, wherein the core has a density of from about 0.04 to about 0.3 g/cc.
10. The unitary absorbent core of claim 1 having a hydrohead of 30 mm or more.
11. The unitary absorbent core of claim 10 having a hydrohead of 50 mm or more.
12. The unitary absorbent core of claim 11 having a hydrohead of 70 mm or more.
13. The unitary absorbent core of claim 1 having a strikethrough of 1.8 g or less.
14. The unitary absorbent core of claim 13 having a strikethrough of 1.2 g or less.
15. The unitary absorbent core of claim 14 having a strikethrough of 0.7 g or less.
16. The unitary absorbent core of claim 1 having an air permeability of 18 m<sup>3</sup>/min/m<sup>2</sup> (60 ft<sup>3</sup>/min/ft<sup>2</sup>) or greater.
17. The unitary absorbent core of claim 1 having a water vapor transmission rate of 500 g/m<sup>2</sup>/24 hr or greater.
18. The unitary absorbent core of claim 17 having a water vapor transmission rate of 1000 g/m<sup>2</sup>/24 hr or greater.
19. The unitary absorbent core of claim 18 having a water vapor transmission rate of 2000 g/m<sup>2</sup>/24 hr or greater.

20. The unitary absorbent core of claim 19 having a water vapor transmission rate of  $3000 \text{ g/m}^2/24 \text{ hr}$  or greater.

21. The unitary absorbent core of claim 1 having a barrier effectiveness value of 30 mm or greater.

22. The unitary absorbent core of claim 21 having a barrier effectiveness value of 50 mm or greater.

23. The unitary absorbent core of claim 22 having a barrier effectiveness value of 75 mm or greater.

24. The unitary absorbent core of claim 1, wherein the moisture barrier has a structure which substantially is fibers coated with hydrophobic material.

25. The unitary absorbent core of claim 1, wherein the moisture barrier has a reticulated remnant of a barrier material emulsion extending from the lower surface region of the absorbent layer to form an outer reticulated foam barrier.

26. An absorbent article comprising:

- (a) a liquid pervious top sheet, and
- (b) a unitary absorbent core of claim 1.

27. The absorbent article of claim 22 further comprising a microporous backsheet.

28. The article of claim 26, wherein the article is an infant disposable diaper, a training pant, an absorbent surgical pad, an adult incontinence device, a sanitary napkin, a pantiliner or a feminine hygiene pad.



29. A process for the production of a unitary absorbent core having a basis weight of about 75 gsm or greater comprising a fibrous absorbent layer having an upper fluid receiving surface and a lower surface with a hydrophobic vapor-transmissive moisture barrier integral with the lower surface of the absorbent layer comprising:

(a) producing a fibrous absorbent layer having upper and lower surfaces,

(b) applying to the lower surface of the fibrous absorbent layer a hydrophobic material which at least partially coats at least some of the fibers of the lower surface of the absorbent layer.

30. The process of claim 29, wherein the fibrous absorbent layer comprises natural fibers, synthetic fibers or a mixture thereof.

31. The process of claim 29, wherein the hydrophobic material is a natural or synthetic polymer.

32. The process of claim 29, wherein the core comprises from about 5 to about 90 percent by weight of SAP.

33. The process of claim 29, wherein the hydrophobic material is an emulsion polymer.

34. The process of claim 23, wherein the emulsion polymer is applied in the form of a foam.

35. The process of claim 34, wherein the emulsion polymer includes a foam stabilizer.

36. Process of claim 34, wherein the emulsion polymer includes a hydrophobicity agent.

37. The process of claim 29, wherein the fibrous absorbent layer is a nonwoven produced by an airlaid process.

38. The process of claim 29, wherein the unitary absorbent core comprises two or more fibrous strata where each stratum is produced in a separate unit operation as part of a continuous process.

39. The process of claim 38, wherein the unitary absorbent core comprises three or more fibrous strata.

40. The process of claim 29, wherein the process comprises providing a tissue having a basis weight of less than about 30 gsm, spraying the tissues with emulsion polymer binder having a dry basis weight of about 10 gsm or less and airlaying a fibrous stratum thereupon.

41. The process of claim 40, wherein the fibrous stratum contains fifty percent or more by weight of eucalyptus fibers.

42. The process of claim 29, wherein the unitary absorbent core comprises one or more strata which are multibonded with an emulsion polymer binder and thermal bicomponent fiber binder.

43. The process of claim 29, wherein the moisture barrier produced has a structure which at least partially coats the fibers at the surface of the absorbent layer with hydrophobic material.

44. The process of claim 29, wherein the moisture barrier produced has a reticulated remnant of a barrier material emulsion extending from the lower surface region of the absorbent layer to form an outer reticulated foam barrier.

45. A unitary absorbent core produced by the process of claim 29.

46. A breathable nonwoven fibrous material having a basis weight of about 75 gsm or greater, a barrier effectiveness value of 30 mm or greater, and having a surface with a hydrophobic vapor-transmissive moisture barrier integral therewith comprising natural fibers, synthetic fibers or a mixture thereof, and a hydrophobic material which at least partially coats the fibers of a surface of the material.

47. A breathable, partially fibrous or nonfibrous nonwoven material or structure having a basis weight of about 45 gsm or greater, a barrier effectiveness value of 30 mm or greater, and having a surface with a hydrophobic vapor-transmissive moisture barrier integral therewith, the material or structure comprising one or more spunbonded, meltblown, coformed, bonded carded, or foamed constituents, optionally in combination with natural fibers, synthetic fibers or a mixture thereof.

48. The nonwoven material or structure of claim 47, wherein the foamed constituent is a high internal phase emulsion (HIPE) foam.

49. The nonwoven material or structure of claim 47, wherein the material or structure is a combination comprising from about 50 to about 99 percent by weight of natural fibers, synthetic fibers or a mixture thereof.

50. The nonwoven material or structure of claim 47, wherein the material or structure has been produced in a unitary process.